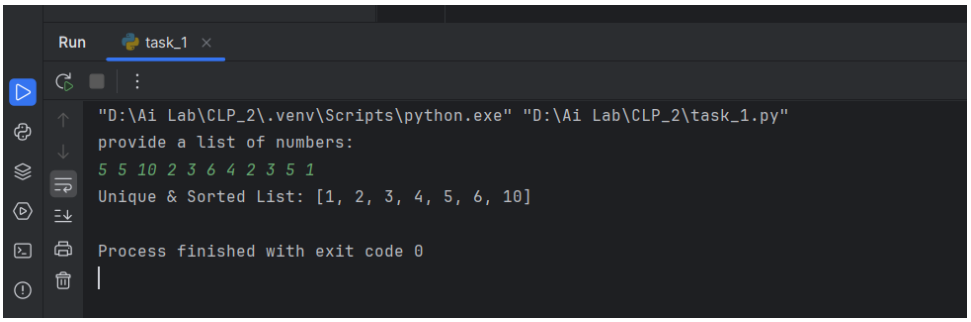
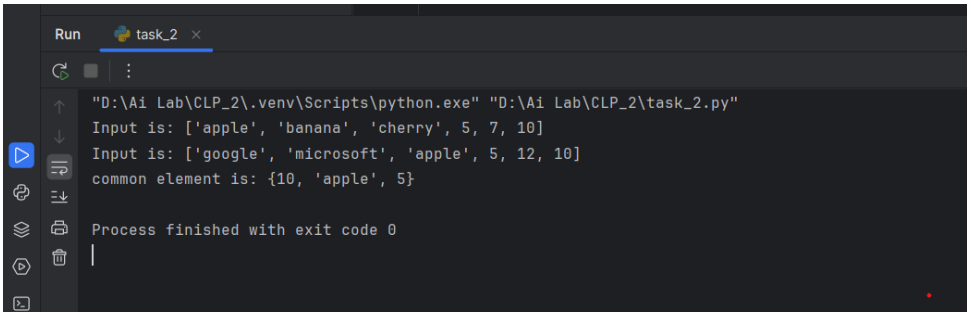
Task 1:Given a list of numbers, remove duplicates and sort in ascending order

```
print('provide a list of numbers:')
initial_list=list(map(int,input().split()))
unique_list=list(set(initial_list))
unique_list.sort()

print('Unique & Sorted List:',unique_list)
```



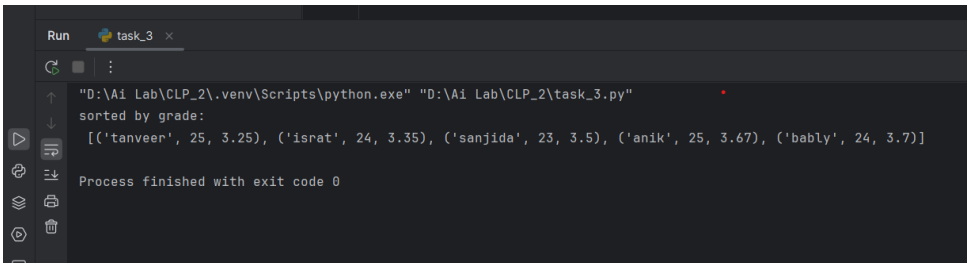
Task 2:Find the common elements between two lists using sets

```
list_a=["apple", "banana", "cherry",5,7,10]
list_b=["google", "microsoft", "apple",5,12,10]

print('Input is:',list_a,'\nInput is:',list_b)

set_a=set(list_a)
set_b=set(list_b)

set_c=set_a.intersection(set_b)
print('common element is:',set_c)
```



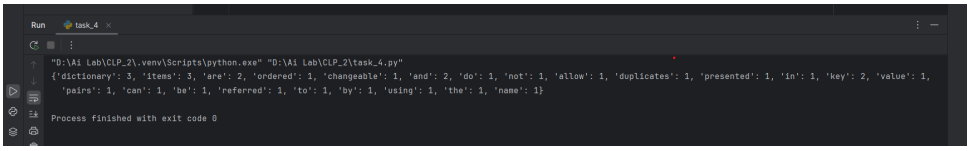
Task 3:Create a tuple of student records (name, age, grade) and sort by grade

```
students=(
    ("sanjida",23,3.5),
    ("bably",24,3.7),
    ("tanveer",25,3.25),
    ("israt",24,3.35),
    ("anik",25,3.67)
    )

sorted_students = sorted(students, key=lambda student:student[2])
print('sorted by grade:\n',sorted_students)
```



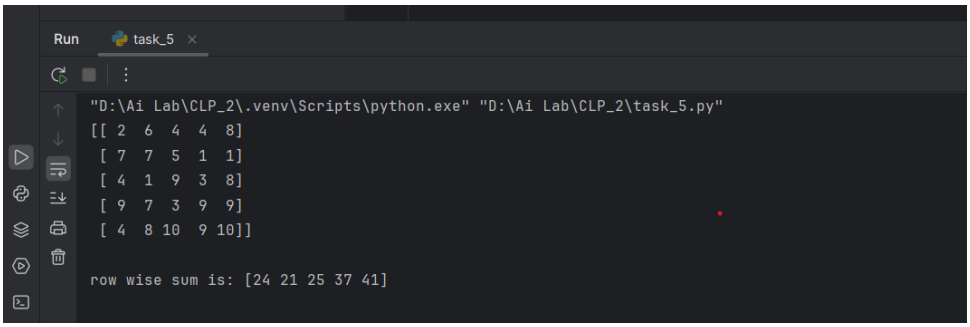
Task 4:Count word occurrences in a given text and store them in a dictionary

```
import pprint
import string

text="Dictionary Items Dictionary items are ordered, changeable, and do not allow
    duplicates. Dictionary items are presented in key: value pairs, and can be
    referred to by using the key name."

text=text.lower()
text=text.translate(str.maketrans('', '', string.punctuation))
words=text.split()

dictionary={}
for word in words:
    if word in dictionary:
        dictionary[word]+=1
    else:
        dictionary[word]=1
print(dictionary)
```



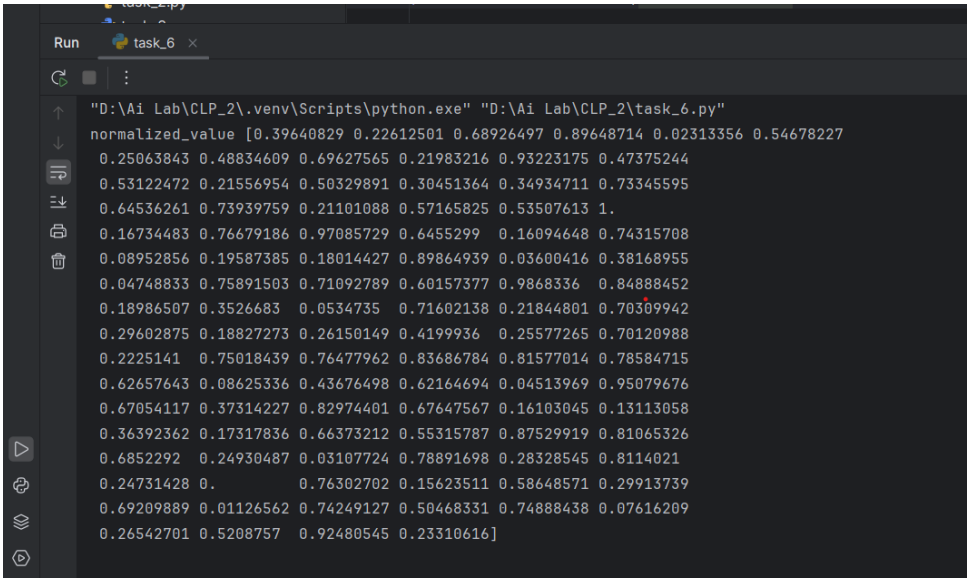
Task 5:Generate a 5x5 matrix of random integers and compute row-wise sums

```python

import numpy as np

matrix=np.random.randint(1,11 ,size=(5,5))
sum=np.sum(matrix , axis=1)

print(matrix,"\n")
print("row wise sum is:",sum)
```



Task 6:Create an array of 100 random values and normalize them between 0 and 1

```python

import numpy as np

random_values = np.random.random(100)
normalized_values = (random_values - np.min(random_values)) / (np.max(
    random_values) - np.min(random_values))

print("normalized_value",normalized_values)
```

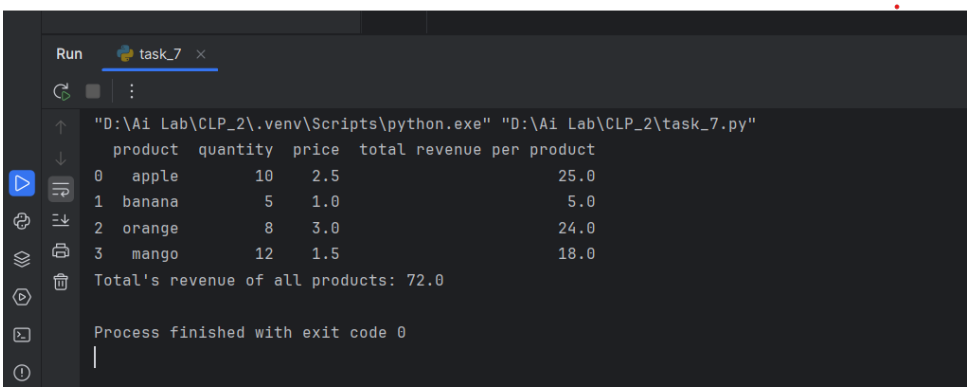


Task 7:Load a CSV file of sales data and compute total revenue per product

```
import pandas as pd

data=pd.read_csv('files/sales_data.csv')
data['total revenue per product']=data['quantity']*data['price']
total_revenue=sum(data['total revenue per product'])

print(data)
print("Total's revenue of all products:",total_revenue)
```

CSV File Content (sales_data.csv):

```
product,quantity,price
apple,10,2.5
banana,5,1
orange,8,3
mango,12,1.5
```

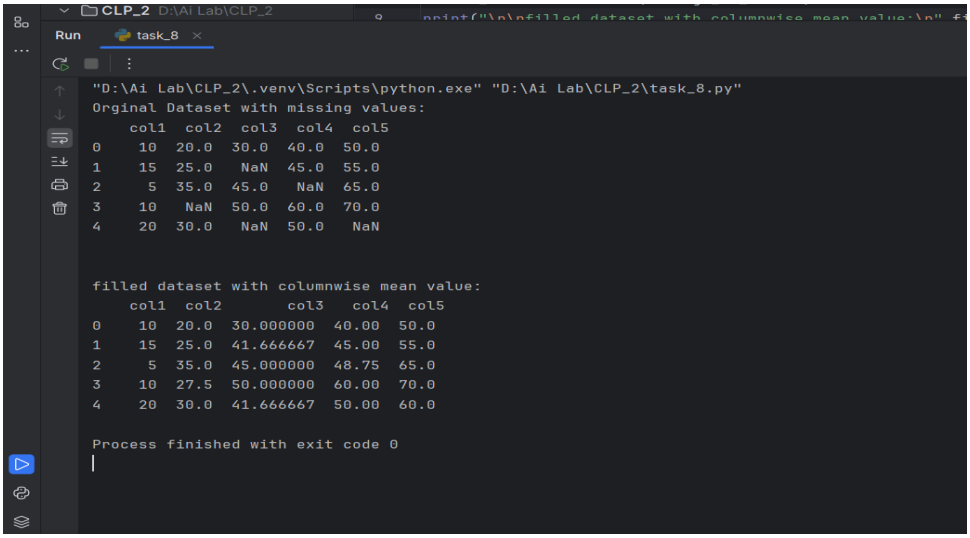


Task 8:Fill missing values in a dataset with column-wise means

```
import pandas as pd

data=pd.read_csv('files/dataset.csv')

print('Orginal Dataset with missing values:\n',data)

average_of_column=data.mean()
filled_data=data.fillna(average_of_column)
print("\n\nfilled dataset with columnwise mean value:\n",filled_data)
```

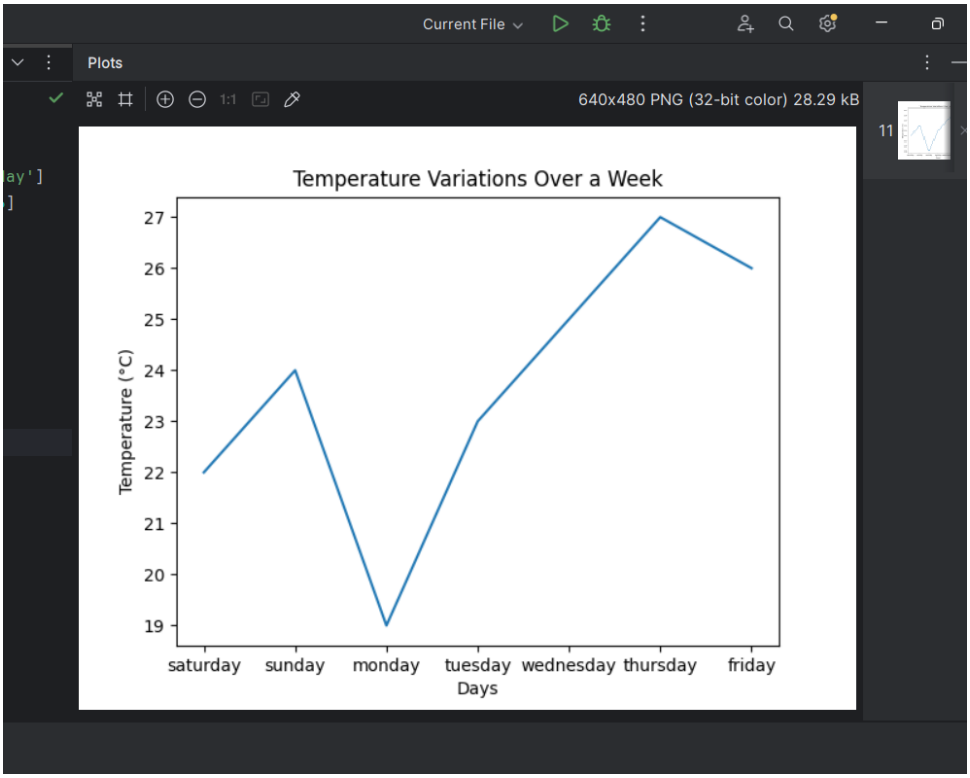
CSV File Content (dataset.csv):

```
col1,col2,col3,col4,col5
10,20,30,40,50
15,25,,45,55
5,35,45,,65
10,,50,60,70
20,30,,50,
```



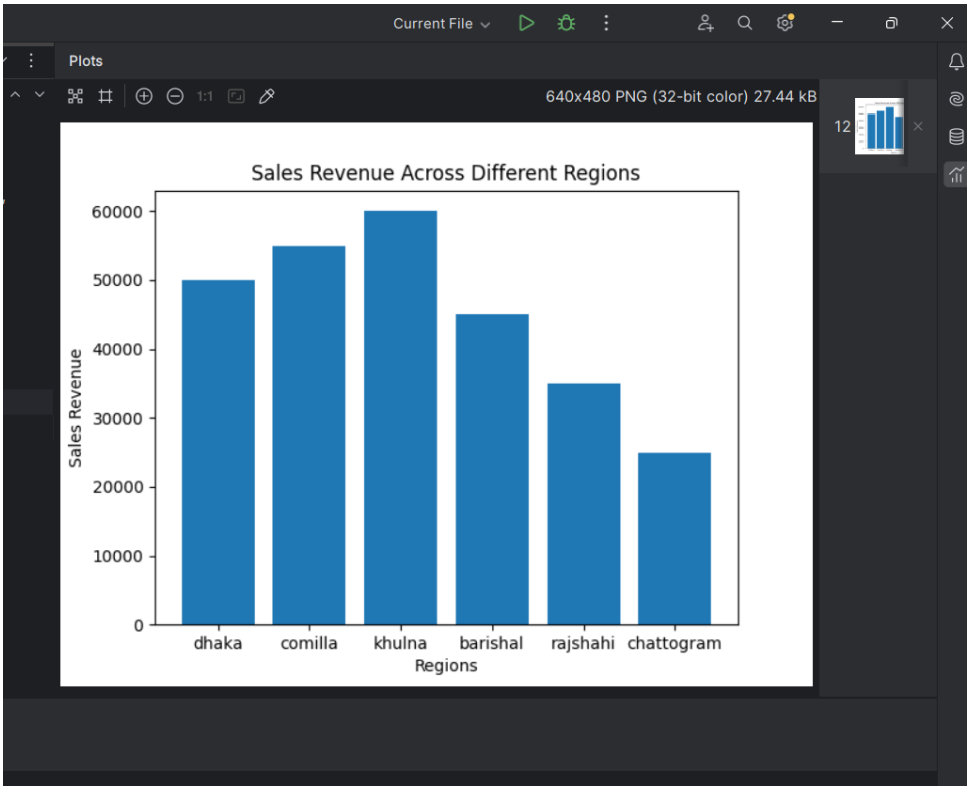
Task 9:Plot a line graph showing temperature variations over a week

```
1
2  import matplotlib.pyplot as plt
3
4  days = ['saturday', 'sunday', 'monday', 'tuesday', 'wednesday', 'thursday', '
       friday']
5  temperatures = [22, 24, 19, 23, 25, 27, 26]
6  plt.plot(days, temperatures)
7
8  plt.title('Temperature Variations Over a Week')
9  plt.xlabel('Days')
10 plt.ylabel('Temperature ( C )')
11
12 plt.show()
```



Task 10:Create a bar chart comparing sales revenue across different regions

```
import matplotlib.pyplot as plt

regions = ['dhaka', 'comilla', 'khulna', 'barishal', 'rajshahi','chattogram']
sales_revenue = [50000, 55000, 60000, 45000, 35000,25000]

plt.bar(regions, sales_revenue)

plt.title('Sales Revenue Across Different Regions')
plt.xlabel('Regions')
plt.ylabel('Sales Revenue (bdt)')

plt.show()
```



GitHub Repository

For more details: `https://github.com/sayed-2299/Academic/tree/main/Artificial%20Intelligence%20%20Lab(CSE-316)/CLP_2`